

OERLIKON UNIVERSAL BEVEL GEAR CUTTING MACHINE C 100 U

The C 60 is the basis for this machine, whereby cutter head and dividing gear meet all the special requirements of this large machine. As one of the ZYKLO-PALLOID® series of machines, the C 100 U – in conjunction with its versatile tooling equipment for gear cutting in the soft stage prior to, and in the hard stage after case hardening – represents a universal gear cutting system for the complete and rational manufacture of bevel gears, as well as hypoid bevel gears, with normal modules ranging from 3.5 to 15.5 mm. With the additional range of application, it is also possible to cut bevel gears.

In addition, it is likewise possible to produce selfcentering face-type clutches extremely economically on this machine. Two-part, multi-start cutter heads with universal blades are used when bevel gears are produced to the conventional method in the soft stage. These permit an unrestricted and accurately aimed formation of contact pattern sizes and positions on the tooth flanks without the need for time consuming contact pattern developments. For machining in the hard stage, i.e. for finish generating after case hardening, the machine employs HPG-S cutter heads which are equipped with HPG-S blades with polycrystalline boron nitride (CBN) cutting edges. Contact patterns are produced in exactly the same manner as for generating in the soft stage.

Hardening distortions, caused during the heat treatment, are eliminated during the HPG-S method. Thus, bevel gears are produced to a tooth quality and a surface finish which is at least equal to the quality and surface finish of ground gears. Bevel gears machined to the HPG-S method are not only produced most economically, they also meet the most exacting quality demands.



AT A GLANCE

- 6-axis CNC machine for high-efficient bevel gear cutting
- Tried-and-tested axis concept for compact design
- Universal tool system provides maximum flexibility
- Short retooling times thanks to ergonomic machine design
- Unrivaled gearing and surface quality
- Energy-efficient (e²)



RANGE OF APPLICATION

	C 100 U	
	CONTINUOUS INDEXING	SINGLE INDEXING
Workpiece data		
Workpiece diameter (max.)	Ø 1,000 mm	
Normal module range (min. – max.)	3.5 – 15.5 mm	upon request
Tooth width (max.)	160 mm	
Pitch cone angle range	0° – 90°	
Smallest/largest gear ratio	1:1/1:10	
Smallest/largest number of teeth	6 – 180	
Axial offset	± 100 mm	
Spiral angle range	0° – approx. 50°	
Tool data		
Cutter head diameter	-	7.5" – 18"
Cutter head radii/number of starts of the Zyklo-Palloid® universal- and HPG-S cutter heads	135/5; 170/5; 210/5; 260/5 mm	
Cutter head spindle (A axis)		
Cutter head spindle speed (max.)	75 rpm	100 rpm
Workpiece spindle (B axis)		
Bore hole of the spindle mount	Ø 270 mm	
Workpiece spindle opening	Ø 204 mm	
Total connected load	60 kVA	
Machine dimensions (L x W x H) approx.	6,665 x 5,250 x 3,200 mm	
Net weight approx.	38,000 kg	

The above-mentioned maximum values were determined for industry-typical gear units. Further testing may be required to determine whether maximum values can be combined.

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